Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
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Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers	)	WC Docket No. 03-173

REPLY DECLARATION OF ROBERT D. WILLIG

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I. INTRODUCTION AND SUMMARY

1. My name is Robert D. Willig. I am the same witness who submitted a declaration on behalf of AT&T Corp. ("AT&T") in the initial round of comments in this case.

2. AT&T has asked me to submit this reply declaration in response to the comments and supporting declarations submitted by the incumbent local telephone companies on December 16, 2003, regarding the economic principles that should govern the pricing of unbundled network elements ("UNEs") pursuant to section 252(d)(1) of the Telecommunications Act of 1996 ("1996 Act"). The incumbents suggest that the Commission should abandon its "TELRIC" pricing standard even if that would result in UNE rates well above the levels that would prevail in a fully contestable/competitive market. Kahn-Tardiff (Verizon) Decl. ¶ 32. I disagree. Even if the incumbents could identify some flaws with the calculation of TELRIC-based prices, it would be, in my view, an abdication of the Commission's public interest responsibilities to abandon that standard and allow the incumbents to charge rates that it knows will be in excess of efficient levels.

3. Rather, in light of the Commission's prior findings that TELRIC "replicates . . . the conditions of a competitive market" *Local Competition Order*, 11 FCC Rcd. ¶ 679 (1996))

provides carriers with incentive to make efficient investment decisions (*id.* ¶ 685), and directly promotes the pro-competitive purposes of the 1996 Act (*id.* ¶ 679) – findings that were upheld as reasonable by the Supreme Court in *Verizon Communications, Inc. v. FCC,* 535 U.S. 467 (2002) – the incumbents here should have a heavy burden of demonstrating with specificity that the Commission's TELRIC standard will understate economic costs, identifying how their proposed standard addresses those shortcomings, and providing in operational detail the data and processes necessary to implement their proposed alternative standard. As I explain below, the incumbents do not even attempt such a showing. They instead ask the Commission to adopt a "reproduction cost" standard for UNE pricing. The Commission, however, has already rejected the reproduction cost standard, correctly observing that it is "essentially an embedded cost methodology" that would foreclose meaningful local competition and preserve the ability of the incumbents to earn supracompetitive profits. *Local Competition Order* ¶ 684. Nothing has occurred since 1996 to change the fundamental economics on which this conclusion was based.

4. To be sure, the incumbents (at times) suggest *ad hoc* adjustments from a "pure" reproduction cost standard. For upgrades or network changes that the incumbent self-reports it will expect to execute over some limited time frame, the incumbent would substitute its self-reported expected costs of these developments. Or, if old plant for which a reproduction cost is sought is no longer in production or would produce patently absurd cost estimates (*e.g.*, reproduction costs of existing analog switches), the incumbents propose some amorphous adjustments to render their standard more forward-looking. These proposed adjustments both concede the important point that existing incumbent networks cannot be presumed efficient and fail adequately to transform reproduction costs that are rife with inefficiency into efficiency-based forward looking economic costs.

5. If anything, recent regulatory developments make the use of reproduction costs even more inapposite for UNE pricing than in 1996. The network that the incumbents would reproduce, of course, is their existing network, which is built to provide a mix of services, such as broadband, local, and wireless. In the *Triennial Review Order*, 18 FCC Rcd. 16987 (2003), the Commission limited the rights of competitive carriers to gain access to the facilities and capabilities of this network. Most notably, the Commission held that competitive carriers cannot obtain access to the broadband capabilities of the large and growing number of loops that contain some fiber. In many instances, the incumbents have deployed this fiber, not because it is efficient for voice services, but to provide broadband services (which competitive carriers are not permitted to provide using those facilities). Thus, these "costs" are not caused by the competitive carriers' purchase of narrowband UNEs, and it would be inefficiently discriminatory to "reproduce" (or, for that matter, to "replace") the costs of these "existing" facilities in calculating UNE costs. The incumbent economists essentially concede this point. NERA (BellSouth) Decl. ¶ 40.

6. Given the well-known deficiencies of the reproduction cost standard, the incumbent economists attempt no meaningful theoretical defense of that standard. In fact, the incumbent economists concede that network element rates should not be set on the basis of "embedded" costs and should not include costs associated with past or existing inefficiencies. Instead, they contend that, in this context, reproduction cost is good enough. They contend that existing incumbent networks can be "presumed" to be "efficient" because of existing "price cap" regulation and "intermodal competition." The incumbent economists, however, do not address the well-known deficiencies of price cap regulation that I discussed in my initial declaration, but merely repeat the simplistic notion that price caps, by breaking the express link between an

incumbent's costs and its rates, create *some* incentive for incumbents to operate efficiently. Ignoring the shortcomings in price cap regulation does not make them go away.

7. Indeed, a careful reading of the incumbents' expert testimony makes clear that the incumbent economists do not believe that the existing incumbent networks are optimally efficient. They expressly acknowledge that because of sunk investment decisions made in the past, the existing networks are not configured the way a new entrant would configure its network and employ technology that is inferior to what a new entrant would deploy. This is consistent with the very definition of *in*efficiency.

8. But whatever salutary effect price cap regulation has on incumbent investment decisions and network operation would be undone by the incumbents' proposed reproduction cost standard that would set UNE rates on their existing network design without reference to efficiency considerations. A reproduction cost standard would enable the incumbents to pass along to their competitors the full cost of the incumbents' investments (including a risk-adjusted return on capital) even if those investments are no longer efficient or were not even efficient when first made. As a result, this standard would threaten the nascent local competition that is now finally emerging nearly eight years after the 1996 Act was passed.

9. Having no theoretical justification for their reproduction costs standard, the incumbent economists launch a scattershot attack on LRIC-based pricing. Their central argument is that TELRIC cannot be "compensatory" in an environment where continued technological advancements consistently reduce the value of long-lived sunk assets. But as the incumbents' principal economist, Dr. Alfred Kahn, acknowledges in his declaration, this purported concern can be addressed fully by an appropriate return on capital and depreciation

lives that reflect this risk. And while the incumbent economists speculate that state commissions have failed to adopt appropriate values for these "inputs," the hard evidence is to the contrary.

10. The incumbents also claim that the Commission's TELRIC rules are internally inconsistent because they assume that the incumbent faces "multiple competitors" that drive rates to costs, yet base rates on the assumption that service is provided by a "single carrier" that operates an efficient network that is capable of serving all customer locations within a particular geographic area. The tension posited by the incumbents is illusory. The basic flaw in their reasoning is their confusion of the competitive market assumptions of LRIC-based pricing with the requirement that there be multiple, facilities-based competitors. Although it is, of course, correct that a market with numerous vigorously rivalrous firms will ordinarily be competitive, the existence of multiple competitors in a market is not a *necessary* condition for that outcome. Markets will also achieve competitive results when effectively *contestable.* "Using contestability theory, economists no longer need to assume that efficient outcomes occur only when there are large numbers of actively producing firms. What drives contestability is the possibility of costlessly reversible entry." William J. Baumol, John C. Panzar and Robert D. Willig, CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE xiii (rev. ed. 1988) (emphasis added). To be sure, the incumbent economists are correct to the extent that they are contending that LRIC-based pricing of UNEs is "counterfactual"; local telecommunications markets are not contestable, but instead are protected by steep entry barriers. But it is precisely because competitive forces are insufficient to constrain incumbent market power that rate regulation is necessary to replicate the workings of contestable/competitive markets.

11. Nor is it true that the proposed reproduction cost standard can be expected to be implemented more accurately than TELRIC. The record testimony is that the incumbents' plant

records are notoriously unreliable. In the case of the incumbents' "hard-wired" central office equipment, for example, the Commission staff determined recently that the incumbents' books contain substantial "phantom" assets, amounting to almost 20 percent of the account totals, suggesting that records on other plant may also be unreliable. The incumbent carriers' outside plant records reflect outdated cable routes and/or cable descriptions, and include redundant or duplicate plant. Worse yet, because the incumbents are the only parties that have access to the data that would be used to construct the reproduction costs of the existing networks, the incumbents would have powerful incentives to manipulate that information to their advantage.

12. In contrast, TELRIC-based rates are based on objective standards that do not give the incumbents an informational advantage. Further, contrary to the suggestions that TELRIC ignores relevant "real world" constraints, such as the location of customers and physical barriers, current TELRIC models expressly take these factors into account (and do so with increasing sophistication through use of geocoded data).

13. Finally, the incumbents again acknowledge that appropriately forward-looking capital costs ensure that TELRIC is fully compensatory, but argue that they are entitled to a premium above the risk-adjusted cost of capital ordinarily determined using standard methods for determining return on investment. There are, however, two general conceptual flaws in the incumbents' proposals. First, the incumbents erroneously claim that the incumbents' own cost of capital is irrelevant and that the relevant "proxy" group of firms for estimating the cost of capital is either firms in the S&P 500, competitive local carriers or long distance carriers. This is wrong because the cost of capital should be based on firms that at least provision UNEs, not firms that face risk totally unrelated to leasing access to UNEs at wholesale and that face radically different risks. Further, contrary to the incumbents' claims, the relevant cost of capital is not that of an

efficient firm that specializes in the provision of only UNEs. An efficient provider of UNEs would take advantage of the efficiencies related to the economies of scope associated with the provision of UNEs. To the extent the incumbents argue that their additional lines of business lower overall risk, the efficient UNE provider would be integrated with a firm that engages in such businesses too. The only proxy group for which public data are available that satisfies these principles is the proxy group of the regional Bell operating companies.

14. Second, the incumbents are wrong in claiming that any cost of capital estimates should be "grossed up" to account for various types of risks and forgone options. As an initial matter, to the extent that the incumbents are discussing risks and options associated with past investment, the "costs" of those risks and options are not attributable to the demands of current UNE purchasers. This is particularly true now given that much of the incumbents' current investment is for facilities that are (in whole or in part) unavailable to competitive carriers on an unbundled basis.

15. In any event, to the extent these risks and options are relevant to the UNEs that incumbents are providing today, the methodologies widely used to determine TELRIC capital costs are based on the expectations of financial markets, which reflect such risks. Moreover, certain of the purported "risks" identified by the Bells, such as "lease cancellation" risk, may actually be "upside" risks, which, if separately incorporated into the cost of capital, would produce a *lower* cost figure. Thus, none of the incumbents' proposed "additors" are warranted.

II. THE REPRODUCTION COST STANDARD PROPOSED BY THE INCUMBENT ECONOMISTS FOR UNE PRICING IS ILLEGITIMATE AND UNWORKABLE.

16. After eight years of attacks by the incumbent local carriers on the TELRIC standard, the initial comments filed by the incumbent carriers in this proceeding provide a

moment of truth. The incumbents' alternative to TELRIC is an empty box. What the incumbents ask the Commission to adopt instead of TELRIC is the standard of reproduction cost: the cost of building and operating, at today's prices, the hodgepodge of legacy assets—whether up-to-date or obsolete, efficient or inefficient, attributable to UNEs or not—that the incumbents happen to have in the ground today. It is difficult to imagine a cost standard that has less to do with true forward-looking economic costs, and which is more clearly illegitimate.

17. As the *Notice* recognizes (¶ 69 n.112), the reproduction cost standard has been long "discredited," and with good reason. The use of "reproduction cost . . . destroy[s] the value of a replacement cost approach. It would, for example, allow inclusion of an expensive plant in the rate base despite technological change that destroyed the value of the existing plant. The more obsolete the plant, the higher might be the rates." Stephen Breyer, REGULATION AND ITS REFORM 39 (1982); *Missouri ex rel. S.W. Bell Tel. Co. v. Public Serv. Comm'n*, 262 U.S. 276, 312 (1923) (Brandeis, J. dissenting) ("If the aim were to ascertain the value (in its ordinary sense) of the utility property, the enquiry would be, not what it would cost to reproduce identical property, but what it would cost to establish a plant which could render the service, or in other words, at what cost could an equally efficient substitute be then produced."). Thus, the reproduction cost standard ignores all innovations and advances in efficiency that have occurred since the assets were installed.

18. As such, the reproduction cost standard does not replicate the rates that would prevail in effectively competitive or contestable markets. *Cf.* NERA (BellSouth) Decl. ¶ 73 (UNE rates should "replicate the results of a competitive market"); Weisman (Qwest) Decl. ¶ 40 (UNE rates should "emulate" "competitive markets"). A firm facing such market discipline cannot price at its reproduction costs where there have been any advances in technology.

Indeed, the defects in the reproduction cost standard have been so well known for so long that the very incumbent economists that support this standard now had long ago derided it as economically improper. "The 'reproduction cost' to which prices in purely competitive markets tend to correspond is not the current cost of reproducing the existing plant, brick by brick, but the current cost of producing the *service* with the most modern technology available." Alfred Kahn, I THE ECONOMICS OF REGULATION, 112 (1970). If "particular assets are really to be replaced in kind, there must be something wrong with allowing *any* obsolescence in the annual depreciation charge." *Id.* at 113 n.71 (emphasis in original). This is especially true for telecommunications firms whose capital is long-lived and can remain used and useful for decades.

19. Needless to say, the incumbents do not explicitly admit that they are advocating a reproduction cost standard here. Instead, they cloak their proposals in euphemisms such as "actual, forward-looking costs" (Weisman (Qwest) Decl. ¶ 49); "the true forward-looking costs that the ILEC is actually likely to incur" (Aron-Rogerson (SBC) Decl. at 43); and "the long run costs that the incumbent actually expects to incur going forward," (Shelanski (Verizon) Decl. ¶ 2). Such euphemisms cannot hide the economic reality.

20. Verizon's economic testimony reveals most vividly the true nature of the incumbents' proposals. "The ILEC's actual forward-looking costs can best be measured by basing UNE prices on the ILEC's existing network, including the configuration of that network, its operational characteristics, and mix of technologies the ILEC will use to supply UNEs." Shelanski (Verizon) Decl. ¶ 16. The "existing network" is then "revalu[ed]" by determing the "actual costs that would be incurred to put in place the ILEC's existing network today." *Id.* ¶ 21; *see also* Kahn-Tardiff (Verizon) Decl. ¶ 33 (rates should be based on "the replacement cost of

the current network, accounting for the amounts of equipment and the mix of vintages that it contains").

21. In a perfunctory bow to forward-looking cost principles, Verizon suggests that some (but not all) of the network changes that it claims it will undertake in the next few years might be reflected in the "revalued" network. Shelanski (Verizon) Decl. ¶ 22. But these modifications concede the central flaw in the reproduction standard while doing nothing meaningful to cure it. By allowing rates to reflect near-term changes to the existing network, Verizon implicitly recognizes that the existing network design is *not* optimal and can be improved. But at the same time, the improvements that would be permitted – only those actually planned by the incumbent in the next few years – are clearly insufficient to achieve the level of efficiency that can be obtained over the long run, when all sunk costs are variable. *Local Competition Order* ¶ 677; *accord*, Weisman (Qwest) Decl. ¶ 22

22. The other incumbents, while paying lip service to forward-looking pricing principles, would also tether network element rates to the costs of reproducing the incumbents' existing networks. BellSouth proposes to base rates on the "cost of a replacement network that assumes existing network routes and plant and equipment locations." NERA (BellSouth) Decl. ¶ 50. If the existing network is populated with obsolete technology, the Commission must assume that this is a "judicious" and efficient result. *Id.* ¶¶ 51-52 & n.42.

23. Like Verizon, BellSouth proposes an alternative standard that implicitly concedes the illegitimacy of reproduction cost without offering any meaningful improvement. BellSouth's alternative is a "blended" approach that would allow incumbents to recover *both* the costs of all upgrades planned by the incumbent over an "objective time horizon (e.g., three to five years)" – *i.e.*, the technologies "that will actually be deployed as new facilities and equipment are needed

to meet growth or as existing facilities/equipment are replaced" (BellSouth 19) – *and* the costs of the equipment "not being upgraded," including assets whose costs are sunk (*id.* at 15-16). Again, the sunk assets would be valued at reproduction cost. BellSouth's approach takes as given the incumbent's "current network systems, routes, equipment locations, etc." (*id.* at 16), "expected incumbent costs" (*id.* at 17), "real-world network attributes and cost inputs" (*id.* at 18). The result of these calculations, apparently, are to be presumed to be efficient even if the costs are inflated by "past inefficiencies" that result from "choices made in the past" (*id.* at 30-31).

24. Qwest too proposes what is essentially a pure reproduction cost standard. According to Qwest, UNE rates should be based on "the actual network characteristics of the incumbent provider") – *i.e.*, the "network designs, technologies and practices that are currently used by telecommunications carriers . . . measured with reference to the real-world attributes and practices of telecommunications networks today." Qwest at 15-18; *see also* Weisman (Qwest) Decl. ¶¶ 20, 22. Qwest does, however, suggest that the results of this approach would be merely presumed reasonable and states that this presumption could be rebutted only by showing that a more efficient technology or design has been "deployed on a scope and scale comparable to that of the ILEC." Qwest at 15-21, 36-37; *see also* Weisman (Qwest) ¶¶ 37-43. The opportunity to rebut the (unfounded) presumption of efficiency is illusory. The only local carriers operating on a "scope and scale comparable to that of" one Bell company are the other incumbent Bells.

25. SBC, for its part, does not even concede that the "presumption" that reproduction costs are "efficient" can be rebutted. SBC demands that the Commission "abandon the premise that each aspect of [the] carrier's network will reflect the cutting-edge efficiency of a perfectly competitive market or anything resembling it. SBC at 25. Instead, "efficiency" would be

redefined downward to mean only "the more realistic efficiency of the ubiquitous networks built up over time and operating by the ILECs whose 'costs' are at issue." *Id.* An incumbent's "actual network" is "the only reasonable means for measuring actual forward-looking costs . . . ." *Id.* at 26; *see also* Aron-Rogerson (SBC) Decl. at 43 (rates should be based on "the ILEC's actual network and the actual level of efficiencies . . . that it has achieved").

26. The identity of the incumbents' proposed cost standards with reproduction cost is perhaps revealed most starkly by the inputs that the Bells advocate. They ask, for example, that the "route configuration and average loop length" found in the incumbents' "existing network" should be taken as given, without considering whether "carriers building facilities today could deploy a network with a more efficient configuration" (Shelanski (Verizon) Decl. ¶ 50); that the "existing" mix of "loop technologies" should be deployed even if "an entrant could provide service more efficiently" using a different configuration (Shelanski (Verizon) Decl. ¶ 48); that the "structure mix" found in the incumbents' "existing network" should also be taken as given without considering whether "carriers building facilities today could deploy a network with a more efficient configuration" (Shelanski (Verizon) Decl. ¶ 50); that "actual fill inputs in ILEC cost studies" should be deemed "dispositive" regardless of whether they represented efficient levels of spare capacity (NERA (BellSouth) Decl. ¶ 78); that the expenses recovered from UNE prices should equal the incumbent carriers' current level of expenses (Qwest at 53); and that nonrecurring charges should be set on the presumption that current practices are efficient (NERA (BellSouth) Decl. ¶ 100-02). Indeed, to the best of my knowledge, the incumbents did not advocate the use of any network-related input value other than one based on existing network design and operational practices.

27. In seeking to defend these reproduction cost proposals, the incumbent economists illustrate the gulf between the reproduction cost standard and well-accepted economic principles. Drs. Kahn and Tardiff state that "[c]onsiderations of economic efficiency and efficient competition *require* that the prices charged to competitors be based upon the LECs' *actual* costs . . . . In unregulated markets, prices tend to be set on the basis of the actual costs of incumbent firms, and they should be." Kahn-Tardiff Decl. ¶¶ 26, 29 (emphasis in original). These actual costs, Kahn and Tardiff add, necessarily reflect the "cumulative impact of business decisions over time that determines the configuration and vintages of the firm's capital assets." *Id.* ¶ 31. "Because of the durability of many components of networks in the telecommunications industry, new business decisions in the industry will typically be constrained by the accumulation of previous decisions." *Id.*

28. Kahn and Tardiff propose two alternative ways to estimate the "actual" costs of a firm that operates with long-lived assets of varying vintages. Their first proposal would "measure the total quantities of network components required by the incumbent's existing network (taking into account how it is actually expected to evolve over a reasonable planning period) and estimate the respective values of those components . . . taking into account the mix of vintages that the network includes." *Id.* ¶ 35 & n. 25. UNE prices would equal "a proper return on the value of the underlying capital" plus depreciation charges and out-of-pocket expenses. *Id.* The second proposal offered by Drs. Kahn and Tardiff (*id.* ¶ 36) is a version of incremental cost:

> It identifies expected volumes of demand anticipated over a certain business planning period and the investments and operating costs anticipated to satisfy that demand. Because such measurements would be based on actual business plans, the quantities and particular types of the necessary components, their prices and associated operating costs would be dictated by the characteristics of the network that actually provides them. As such, such a calculation identifies the economic

resources (capital and operating) that will be expended in producing the volume of network elements in question.

29. The most striking aspects of these proposals is not what Drs. Kahn and Tardiff say – few economists would disagree with the quoted statements – but what the authors ignore: how to measure the "value" of the long-lived sunk investment that is already in place at the beginning of the study period. This, however, is the central issue. When the incumbent firm's existing sunk investment is valued properly, then the two proposals offered by Kahn and Tardiff become effectively equivalent to the TELRIC standard that they deride elsewhere in their declaration – and utterly inconsistent with the reproduction cost proposals that Kahn, Tardiff, Verizon, and the other incumbents ask the Commission to adopt.

30. These conclusions follow from the definition of long run and short run costs. All relevant cost measures, whether long run or short run, are measures of the flow of costs over a specific period (annual, weekly or whatever) – not the sum total of costs over time periods that are different from each other. The real difference between these concepts involves the length of time before the enterprise's inherited sunk assets lose their remaining value.

31. Long run costs – of which TELRIC is an example – are forward looking from today, cost minimizing, and unconstrained by the firm's past investment decisions. Long run costs are of course influenced by exogenous factors such as input prices, technology, the physical environment, and the characteristics of demand, but are unaffected by the existence or value of inherited capital assets, or by contractual constraints held over from the past.

32. Short run (and medium run) costs are still cost-minimizing looking forward from today, but – unlike long run costs – reflect a planning period in which investments in long-lived

assets inherited from the past remain sunk.[1] The sunk investment in these assets cannot be converted into cash and made fungible. The assets, however, still can provide some productive functionality, and their existence influences forward-looking decisions on what inputs to deploy afresh. As Kahn and Tardiff indicate, short run costs certainly include all forward-looking new expenditures needed during the planning period. The question unanswered by Kahn and Tardiff, however, is how to value the inherited sunk assets themselves. Economists have identified three alternative approaches to this question:

33. The first approach would assign no costs at all to the inherited sunk investment. Since the investment is sunk, there is no opportunity cost of using it. (That is, if you decide not to use the assets, no costs of their financing are thereby saved or avoided; likewise, if you decide to use them, there are no additional such costs that result.) Short run costs ("SRC"), so defined, are necessarily equal to or less than long run costs ("LRC"). Qwest (Wiseman) Decl. ¶ 22. This follows because in the short run scenario, one way to produce the same outputs would be to ignore the sunk assets and buy all inputs fresh, in which case short run costs would equal long run costs. Hence, if the owner of the sunk assets elects to continue using them (as incumbent carriers typically do), doing so must be as cheap as, or cheaper than, starting fresh. Ergo, with this treatment, SRC $\leq$ LRC.

34. The second approach would assign costs to the inherited sunk assets according to their appraised value. The appraised value of the assets is the present discounted value of the savings their use would permit an enterprise in the business, as compared to not using the assets and starting fresh. If the sunk assets were not used at all, the enterprise would incur long run

[1] The difference between short run costs and medium costs is just a matter of degree. Medium run costs are the same concept as short run, except that the sunk assets have more time remaining (continued . . .)

costs. Since the appraised value makes the enterprise indifferent between using the sunk assets or not, this standard leaves the enterprise with SRC = LRC.

35. The third approach would equate the costs of the inherited sunk assets with their reproduction costs. From this perspective, SRC > LRC, except in the fortuitous case that an enterprise unconstrained by any legacy assets from the past would efficiently choose exactly the same assets that had been chosen historically, even if the prices of outputs produced by those assets were also unchanged. (In this unlikely circumstance, SRC = LRC.) This approach, however, violates economic logic. If intervening advances in technology progress and other changes in economic circumstances have rendered an enterprise's old assets an inefficient choice (at least at their old prices), then the efficient enterprise would not elect to reproduce the old assets. Hence, the appraised value of those assets is less than their reproduction cost, and a measure of short run cost that includes their reproduction cost is biased upward.

36. Professor Kahn, in his previous professional work, has recognized that the correct approaches to valuing sunk investment are the first two of these alternatives, not the third. He has emphasized that sunk assets, if valued at all, must be revalued downward to reflect their reduced market value – and the resulting reduction in their forward-looking opportunity cost that alone renders efficient their continued use. "If the economic value were correctly stated on the books the addition of gross return on that net book value to the variable costs of operating the old plant would produce a cost of service exactly equal to that of a new plant." I Alfred Kahn, ECONOMICS OF REGULATION 121 (1970). In either event, the reproduction costs of the sunk assets – alternative three above – are irrelevant (*id.* at 118):

(. . . continued)
before they become valueless.

> In either event, the continuing, fixed costs on the old equipment—the depreciation that may not yet have been fully recovered, the return on the net investment not yet fully written off, interest on the debt already incurred—are irrelevant to the decision. Sunk costs such as these are bygones, unchangeable past history, and best forgotten.[2]

37. In sum, the incumbent carriers' reproduction cost proposals are completely at odds with these principles. The incumbents are trying to have it both ways: recovering the higher operating costs of obsolete embedded assets, without making the offsetting downward revaluation in the *investment value* of those assets that a competitive market would require.

38. The other incumbent economists likewise attempt no meaningful theoretical defense of the reproduction cost standard. In fact, as noted, they concede, that network element rates should "emulate competitive market outcomes" (Weisman (Qwest) Decl. ¶ 40) and, therefore, "CLECs should not have to pay UNE prices that compensate ILECs for past inefficiencies" (NERA (BellSouth) Decl. ¶ 65); *see also* NERA (BellSouth) Decl. ¶ 73; Shelanski (Verizon) Decl. ¶ 7. Instead, the incumbent economists attempt to defend the use of reproduction costs on a different ground. They contend that the "reproduced" network is close enough to the "replaced" network for the task of setting UNE rates. In particular, the incumbent economists contend that the existing incumbent networks should be "presumed" to be "efficient" because of existing "price cap" regulation and "intermodal competition." Aron-Rogerson (SBC) Decl. at 39-43; Kahn-Tardiff (Verizon) Decl. ¶ 10; NERA (BellSouth) Decl. ¶ 66; Shelanski (Verizon) Decl. ¶ 16; Weisman (Qwest) Decl. at 18-22. Alternatively, the incumbent economists

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[2] In his treatise, as in his testimony, Dr. Kahn qualifies these statements with the condition that, for regulated firms, the depreciation charges allowed by the regulator be large enough to cover the diminution in the economic value of the sunk investment. *Id.* at 118-19. As explained elsewhere by me and by AT&T witness Richard Lee, however, the depreciation standards adopted by the Commission are consistent with this condition.

contend that the theoretical deficiencies in the approach that they advocate can be overlooked on the grounds that "reproduction costs" is an easily applied standard. Kahn-Tardiff (Verizon) Decl. ¶ 32; Shelanski (Verizon) Decl. ¶ 2. None of the asserted justifications withstand scrutiny.

39. *Price Caps.* I have already explained in detail in my prior declaration (¶¶ 51-58) why "price caps" are not sufficient basis to presume that existing incumbent network design and operation is efficient. So have two other AT&T witnesses, John Klick and Lee Selwyn. The incumbent economists largely ignore these issues, and simply repeat anew the notion that price caps, by weakening the direct link between an incumbent's costs and rates, create incentives for *some* improvement in efficiency. *See, e.g.*, Aron-Rogerson (SBC) Decl. at 41-43; Kahn-Tardiff (Verizon) Decl. ¶ 10. This proposition does not begin to justify the use of reproduction or embedded costs as a surrogate for long run incremental costs.

40. Price cap regulation, even in its purest form, is not equivalent to effective competition, and cannot be expected to "incent" the incumbents to deploy and maintain fully efficient networks. Firms in competitive markets that fail to achieve the most efficient cost structure also face the real prospect of not just a decrease in profits, but the loss of substantial market share and, potentially, being driven from the market altogether. Price cap regulation does not mimic this incentive.

41. Price caps also do not fully break the link between the costs that the incumbent incurs and the rates it may charge. *Verizon*, 535 U.S. at 486 (price caps "do not eliminate gamesmanship"). In practice, price caps are only a modified form of rate-of-return regulation. The price cap rate ceiling is always subject to change by the regulator – and the typical basis for altering the index is that a company's costs have increased at a greater rate than the index. Kenneth Train, OPTIMAL REGULATION 327 (1991) (under price cap regulation, a firm will have

incentive to "waste so as to convince the regulator to allow a higher cap"). By overinvesting in network capacity, the incumbent provides itself with a powerful argument to seek adjustments to the index that would allow the incumbent to increase its rates. *Id.*

42. Perhaps the most important reason that price cap regulation cannot be presumed to have "incented" the incumbents to deploy optimally efficient networks is the sunk nature of much of facilities used to provide telecommunications services. NERA (BellSouth) Decl. ¶ 87. Incumbents have no incentive to eliminate the excess network capacity that was deployed under prior rate-of-return regulation because the going-forward costs of carrying excess capacity are negligible compared to the costs of removing it. And where demand has been relatively flat or declining, that excess capacity will persist indefinitely.

43. More broadly, price caps do not alter the fact that current investment decisions by incumbents are constrained by the sunk nature of the assets and do not necessarily reflect the most efficient practice. From the time of implementation of even a "perfect" price cap system, the regulated firm would be motivated to minimize costs in the sense of going-forward cash costs, given the then-current endowment of sunk assets. These forward-looking costs are substantially less than TELRIC because they omit any costs associated with sunk assets.

44. Thus, once an incumbent has deployed a long-lived, sunk asset, that past investment will cause the incumbent to make investment decisions going forward that, while perhaps efficient on the basis of short run considerations which value these investments practically at zero because they are sunk, do not result in a network that is today optimized to serve current demand. For example, if an incumbent made sunk investment in technology that remains capable of providing service today but that is no longer the most cost-effective technology, the inefficient technology may persist in the incumbent's network because it is

cheaper to remain that technology in place than to replace it. Similarly, outside plant that is no longer necessary because of changes in where service is demanded will remain in place until it is more costly to maintain it than to remove it.

45. Dr. Shelanski makes this exact point in his declaration:

> The mix of facilities and technologies that the ILEC will purchase going forward will necessarily be informed by its existing network configuration and technology. . . . Thus, for example, even if a carrier starting from scratch might deploy a substantial amount of technology known as GR-303 as its switching interface, it may well be inefficient for an ILEC to do so because, among other things, using GR-303 might require it to incur additional costs such as changing other incompatible technologies in its network or developing new operations support systems.

Shelanski (Verizon) Decl. ¶ 30. So too do Drs. Aron and Rogerson. *See* Aron-Rogerson (SBC) Decl. at 19 ("since the ILEC is not able to replace its entire plant at once, but instead does so incrementally over time, the ILEC . . . is necessarily constrained in its ability to adopt new technology than is a hypothetical new entrant.").

46. Moreover, even if the incumbents were correct that price caps gave them powerful incentives to operate their existing network efficiently, that is not the "network" relevant for the regulatory purposes at issue. To the extent that incumbents are maintaining an optimally efficient network, it is their "actual" network that is used to provide a broad array of services (*e.g.*, local telephone, broadband, wireless). In the wake of the *Triennial Review Order*, however, competitive carriers are entitled to obtain unbundled access to only a fraction of the capabilities of that network. It simply cannot be "presumed" that investment made to maximize the efficiency of the multi-product network is the most efficient network to provide the UNEs at issue here. For example, it may make perfect sense for incumbents to push fiber further into their network to provide broadband services, but such investment may not be necessary efficiently to provide narrowband UNEs that are being made available to competitive carriers.

Likewise, it may be efficient for incumbents to deploy capacity today to serve future demand, but the costs of those "existing" facilities must charged to the future ratepayers that use the capacity, not in the lease rates paid by current UNE purchasers.

47. Finally, the incumbents ignore altogether the impact that expressly linking UNE rates to existing network design would have on incumbent incentives. The reproduction cost standard advocated by the incumbents would largely, if not entirely, negate the hypothesized benefits of price cap regulation. Under the reproduction standard, the incumbents would be able to recover their costs, whether or not they were incurred inefficiently, through the access rates they charge their competitors.

48. Indeed, taken to its logical extreme, the incumbents would put in place a regime that contains the worst aspects of traditional rate-of-return regulation. To the extent that price caps were in fact biting into incumbent retail margins, the incumbents could cede that retail business to competitive carriers and supply them at wholesale the necessary network access. And under the incumbents' reproduction cost standard, they would be entitled to a competitive return on capital for all of their assets (regardless of whether "used and useful" or "prudent").

49. In contrast, TELRIC-base rates provide no such anticompetitive incentive. TELRIC prices are not influenced by the actual investment or operational decisions of the firm, but are set on the basis of efficient costs. Indeed, in this respect, TELRIC is superior to price caps because it allows prices to evolve in a relatively exogenous way in order to eliminate windfalls.

50. *Intermodal Competition.* The proposition that the incumbents are already subject to effective facilities-based competition (and therefore, can be presumed to have adopted efficient network design and practices) cannot be credited. *See* Kahn-Tardiff (Verizon) ¶ 10;

Shelanski (Verizon) ¶ 16. The Commission in the *Triennial Review Order* expressly considered whether there were alternative providers of the network elements at issue and concluded that there generally were *not*. Cable telephony serves only a small fraction of the country, and its long-term prospects for expansion are now in grave doubt. *Triennial Review Order* ¶¶ 52, 222, 229. And while wireless services are more ubiquitous, consumers do not now view them as fully adequate substitutes for local, wireline services. *Id.* ¶ 230. VoIP has gained only a handful of customers to date, and is only available to the fraction of consumers that have (and pay extra for) broadband Internet access.[3]

51. These facts also provide a complete response to the claim that TELRIC is impeding voluntary "wholesale" arrangements. The Commission has unbundled only those elements for which it has found that multiple competitive supply is not possible. Kahn-Tardiff (Verizon) Decl. ¶ 13. In those circumstances, incumbent carriers have absolutely no incentive to provide access to their local networks at rates, terms and conditions that would threaten their current ability to earn supracompetitive rates. *Local Competition Order* ¶ 141.

52. *Ease of Implementation.* Lastly, the incumbent economists try to shore up the manifest problems with their proposed reproduction cost standard by contending that it has the virtue of "accurately" calculating costs. Kahn-Tardiff (Verizon) Decl. ¶ 32; Shelanski (Verizon) Decl. ¶ 2. Even if true – and as I will explain below, it is not – there is no benefit to the Commission in accurately calculating the reproduction costs of an existing network. All this

[3] VoIP is a *protocol* for transmitting information over facilities, and VoIP providers use the incumbents' local loops and transport facilities to originate and terminate calls. Vonage, the nation's largest provider of VoIP services, claims about 50,000 total lines – about one-fortieth of one percent of the mass-market total. *See, e.g.*, www.vonage.com/corporate/press_index.php?PR=2003_09_23_0.

would accomplish is accurately determining the level of inefficiency that persists in the existing network design and operation. *Accord*, I Alfred Kahn, THE ECONOMICS OF REGULATION 199 n.39 ("An approximation, even one subject to wide margin of error, to the correct answer is better than the wrong answer worked out to seven decimal places.")

53. Further, for the reasons I explained above, the reproduction cost standard advocated by the incumbents does not avoid the use of "hypothetical" network assumptions. A large share of the investment in existing local networks is not "attributable to" or "caused by" the UNEs at issue here. For example, where loop investment was made for purposes of broadband services (*e.g.*, fiber-to-the-curb), competitive carriers clearly should not have to pay for the higher cost of these facilities when the narrowband services that they are permitted to provide use lower cost facilities. Under the incumbents' test, in each such instance, a "hypothetical" network would have to be substituted for the "existing" network in order to calculate UNE prices (or potentially an arbitrary allocation made between broadband and narrowband costs).

54. In any event, the Commission should be highly skeptical about any claim that "reproduction cost" is easily implemented. As Mr. Klick described at length, the incumbents simply do not maintain the data in the form that is required to accurately calculate the costs of reproducing the existing network. First, recent audits have concluded that the incumbents' investment records for hard-wired central office equipment are bloated with "phantom" assets. *Continuing Property Records Audit*, 14 FCC Rcd. 7019, ¶ 1 (1999) ("upon a physical examination of the companies' central offices, neither company personnel nor Bureau auditors were able to locate certain central office equipment which is recorded in the companies' books and accounts"). Further, the incumbent carriers' outside plant records reflect outdated cable routes and/or cable descriptions, and include redundant or duplicate plant. Klick Decl. ¶¶ 58-74.

Finally, incumbents simply do not maintain records that can accurately describe, in any sort of readily retrievable and usable fashion, the actual quantities and locations of cables, poles, conduits, trenches and cable types that are currently in place in the ground today in any given study area. *Id.* ¶¶ 68-74. Rather, "these records are maintained only for broad categories of plant" and cannot be used to determine accurate per-line costs. Bryant Essay at 4.

55. The reproduction standard would also put competitive carriers (and state commissions) at an enormous disadvantage vis-à-vis the incumbents in developing and verifying cost models based on reproduction costs. By definition, the point of the reproduction cost is to determine the cost of existing incumbent facilities. The only entities that could possess that information, of course, are the incumbents (and as noted, even they do not possess all of the required information).[4] And, contrary to the incumbents' claims, the incumbents would have strong incentives to manipulate the data to their advantage. Weisman (Qwest) Decl. ¶ 46 ("This incentive to overstate costs is not necessarily present in an environment in which rivals have the option to self-provision their own networks, purchase network capacity from a third-party, or lease network elements from the incumbent providers."). For the network elements at issue, competitive carriers do *not* have the option of self-provisioning or leasing from third-parties. And it is precisely because the only option is leasing access from the incumbent provider, that the incumbent has a strong incentive to manipulate the data that it controls to raise the cost of the access.

[4] At the same time it claims that costs should be based exclusively on information that would solely be in its position, Verizon also asks the Commission to diminish greatly the ability of competitive carriers and state commissions to discover that information. Verizon at 106.

56. These problems would be amplified to the extent that costs would be based on the existing network as modified by those short-term improvements contemplated by the incumbents. Rather than being "objective and verifiable" (Shelanski (Verizon) Decl. ¶ 18), the incumbents' network modifications plans are, by definition, subjective, unverifiable, and known only to the incumbents themselves. Thus, at bottom, state commissions would have little option but to allow incumbents to "self-report" planned network upgrades. And to the extent that these changes are designed to increase efficiency and lower cost of service, the incumbents would have strong incentive to avoid disclosing them.

57. Finally, the incumbents' advocacy on this point is called into question by their failure to support their claims with evidence. In the *Local Competition* proceedings, the parties advocating a forward-looking economic cost standard sponsored detailed cost studies and provided those studies to the Commission. Thus, the Commission had before it proof that verifiable cost studies could be developed to implement the LRIC standard, including four working cost models based on the TELRIC standard or some variant of it. *Local Competition Order* ¶¶ 794-96. Here, by contrast, despite saying how easy it is to implement the reproduction cost standard, the incumbents have offered no cost study or cost model based on that standard for the Commission to study. The cost models needed to implement a reproduction cost standard are, at this point, vaporware, and the underlying data are seemingly nonexistent.

III. THE INCUMBENT ECONOMISTS' CRITIQUE OF LRIC-BASED UNE RATES IS UNFOUNDED.

58. Given the manifest weaknesses in the reproduction cost approach, the incumbent economists understandably devote their energy to attacking TELRIC. But these criticisms are as unfounded as the reproduction cost standard that the incumbents offer as an alternative. At core, the Bells' basic complaint is that TELRIC requires that UNE rates be set on the basis of the